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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/621,281 | 07/20/2000 | Dong-Hoon Lee | 3430-0126P | 4261 |

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EXAMINER

NGUYEN, HOAN C

ART UNIT PAPER NUMBER

2871

DATE MAILED: 04/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/621,281

Applicant(s)

LEE, DONG-HOON

Examiner

HOAN C. NGUYEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's arguments with respect to Amended claims 1, 6, 10 and 14 have been considered but are moot in view of the new ground(s) of rejection. Therefore, this is Final action.

Claim Objections

1. Claims 6 and 14 are objected to because of the following informalities: claims 6 and 14 recite "a concentration of the reflective material scattered on surface of the transfective film that is adjusted according to a main mode of the transfective liquid crystal display device", Applicant needs to clarify what is a main mode. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (US6295109B1) in view of Taiji (JP3228027).

In regard to claims 1 and 10, (Figs 2-3 and 21-22) a transfective liquid crystal display device comprising:

- a liquid crystal display panel having a first transparent substrate (counter substrate), a second transparent substrate (an active-matrix substrate),
- a liquid crystal layer interposed between the first and second transparent substrates as shown in Fig. 2,
- the first transparent substrate having a color filter (col. 48 lines 7-12, it was conventional that color filter is formed on counter substrate for color display),
- the second transparent substrate having a pixel electrode 54 and a reflector,
- the reflector 52 made of an opaque conductive material (claim 4), and having a light transmitting hole which the pixel electrode 54 covers, the light transmitting hole transmitting light;
- a back light device (col. 13 lines 24-32).

wherein

- each pixel region is divided into reflective and transmissive portions (Fig. 21) and a reflection brightness of the transfective liquid crystal display device is improved due to a first reflected light at the reflector of the reflective portion (region R).
- the reflector is made of an opaque (block light) conductive material of aluminum (col. 50 lines 33-35) according to claims 4 and 12;
- the pixel electrode is made of indium-tin oxide (col. 49 lines 34-35) according to claims 5 and 13.
- the hole has a rectangular shape as Fig. 21 shown according to claim 9 and 17;

However, Kubo et al. fail to disclose a transfective film located outside of the second transparent substrate of the liquid crystal display panel, and the transfective film is made of a transmissive material with reflective material scattered therein, wherein (a) transmissive material is made of acrylic-based resin according to claims 3 and 10, (b) the reflective material of the transfective film is selected from a group consisting of Ag and Al according to claims 2 and 11; (c) the transfective liquid crystal display device has a reflective main mode, and the concentration of the reflective material is increased according to claims 7 and 15; (d) the transfective liquid crystal display device has a transmissive main mode, and the concentration of the reflective material is decreased according to claims 8 and 16.

Taiji teaches (Figs. 1-3) the transfective LCD device, wherein

- a transfective film (diffusion plate 2) located outside of the second transparent substrate of the liquid crystal display panel 1, and the transfective film is made of a transmissive material of acrylic resin 6 with reflective material (aluminum particles 7) scattered therein for improving display quality. Therefore, a reflection brightness of the transfective liquid crystal display device is improved due to the second reflected light at the transfective film of the transmissive portion (region I).
- the concentration of aluminum particle can be adjusted to modulate transmission, reflection and absorption as Fig. 3 shown according to claims 6 and 14.

- the transflective liquid crystal display device has a reflective main mode, and the concentration of the reflective material is increased as shown in Fig. 3 according to claims 7 and 15.
- the transflective liquid crystal display device has a transmissive main mode, and the concentration of the reflective material is decreased as shown in Fig. 3 according to claims 8 and 16.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a transflective liquid crystal display device as Kubo et al. disclosed with (a) a transflective film located outside of the second transparent substrate of the liquid crystal display panel, and the transflective film is made of a transmissive material with reflective material scattered therein, wherein the reflective material of the transflective film is selected from a group consisting of Ag and Al for producing bright picture; (b) a concentration of the reflective material scattered on a surface of the transflective film is adjusted for modulating transmission, reflection and absorption.

Response to Arguments

Applicant's arguments filed on Jan. 30, 2003 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are follows:

A. Taiji fails to disclose a concentration of the reflective material scattered on surface of the transfective film that is adjustable.

B. Kubo and Taiji fail to disclose that each pixel region is divided into reflective and transmissive portions and a reflection brightness of the transfective liquid crystal display device is improved due to a first reflected light at the reflector of the reflective portion and a second reflected light at the transfective film of the transmissive portion.

Examiner's responses to Applicants' ONLY arguments are follows:

A. Taiji disclose (Fig. 3) a concentration of the reflective material scattered on surface of the transfective film that is adjustable.

B. Kubo disclose that each pixel region is divided into reflective and transmissive portions (Fig. 21) and a reflection brightness of the transfective liquid crystal display device is improved due to a first reflected light at the reflector of the reflective portion (region R)

Taiji disclose the transfective film acting as diffusing layer, which will scatter or reflect a second reflected light at the transfective film of the transmissive portion (region T).

Therefore, the combination of Kubo and Taiji has been obvious to one having ordinary skill in the art at the time the invention was made to further modify a transfective liquid crystal display device.

Conclusion

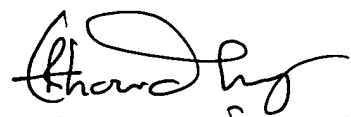
Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (703) 306-0472. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN
Examiner
Art Unit 2871

chn
April 1, 2003


Primary Examiner
Tech. Center 2800